472

Help Yourself to Science

by

N. A. WATTS

472

HELP YOURSELF TO SCIENCE

BOOK THREE

A/F

A WORKBOOK TO ACCOMPANY

Adventures in Tropical Science, Book III

By

N. A. WATTS, B.SC., B.T., A.B.T.I.

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PREFACE

The analysis, identification, measurement and evaluation of the abilities of pupils that underlie and condition achievement in Science constitute the peak-point of the use of self-tests in modern, enlightened teaching practice. The self-tests in HELP YOURSELF TO SCIENCE are an important device in the teacher's diagnostic equipment, for they have been specially designed to test the mental ability of the pupil, not only from the view-point of content mastery, but have also taken into account other learning products which include such aspects as thinking skills and desirable attitudes.

Teachers will find that these informal objective tests inject a surprisingly large degree of accuracy into their methods of diagnosis, measurement and evaluation. Through the use of these adequately valid and reliable measuring devices, teachers will obtain precise, instructional information concerning the abilities and limitations of their pupils, of individual pupil differences in capacity and achievement and the status of achievement of the class as a whole.

The Workbooks will keep the pupil informed of his progress and this will inevitably serve as further incentive to greater effort. The tests will aid the pupil to check and marshal his grasp of the text and give him practice in the skills of collecting data, solving problems, applying his understanding to everyday situations and in this way, further reinforce his command of the subject.

These tests, chiefly because of their definiteness and objectivity, will also reveal to the teacher the extent of efficiency of certain special methods of instruction he has employed, while special types of emphasis he has used will be brought into sharp focus from a critical analysis and interpretation of the test-results. The results will also give the teacher evidence of the pupil's progress towards specific goals of achievement : their ability to express their knowledge, the extent of their understanding of the science vocabulary used in the text, their mastery of facts, their growth in scientific attitudes, interests and appreciations and their proficiency in using their freshly acquired skills to identify, attack and solve problems. Furthermore, the results will provide the teacher with a basis for the objective grade placement of pupils.

HELP YOURSELF TO SCIENCE is purposely designed to ensure maximum activity on the part of the pupil. The learning experiences in the series have been styled and organised to involve the pupil in the process of learning about science, for it is such involvement in a meaningful learning experience which is directed towards the accepted objectives of science teaching, that will further vitalise his study of the texts and serve to develop, clarify and enrich his science understandings. These thought-provoking, study-helps are planned to raise the pupil out of the mire of conventional memorisation of factual material and the traditional tendency to cast all instruction into the mould of mere assimilation of subject matter; they aim at providing guidance to first-hand experiences which offer the pupil abundant opportunities to effectively translate into action his newly acquired knowledge in the world outside the classroom. Accordingly, specific directions are given for independent and group investigation and experimentation which focus on the major concepts and principles presented in the texts, so that, the pupil may experience the thrill of active participation as he explores his environment to collect the evidence he requires to facilitate his learning of the subject.

Properly exploited by the teacher the suggested experiences in each Workbook may well open new avenues of interest and satisfaction to the pupil besides amplifying and extending the corresponding text which it accompanies, thereby contributing to overall understanding and fulfilling the triple function for which it has been designed — to serve as a testing, a learning and a teaching aid.

Each Workbook contains tests which are constructed parallel to the chapters in the text-book it accompanies, so that the student's mastery of each chapter is facilitated. At the end of the book are tests which require the integration of the knowledge gained in the preceding chapters in order to be answered correctly.

The sheets in the Workbook may be distributed separately in schools where a loose-leaf file is in use for the subject, or the Workbook can be used intact. In either case, the corrected exercises should be readily available as a reference for study and review.

—N. A. WATTS

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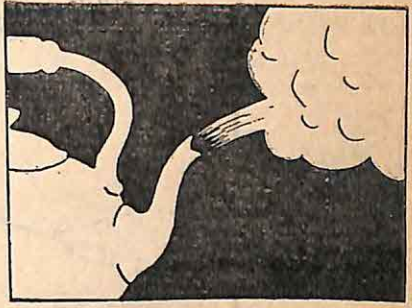
NAME________________ CLASS________________ DATE________________

Ice, Water and Vapour

1. The picture shows steam coming out from the spout of a kettle containing boiling water.



a. Why does the steam-cloud form?

b. Why does no cloud form in the space immediately before the spout?

c. Why does the steam-cloud pass into the air as water-vapour?

d. What would be the effect of holding a lighted candle beneath the steam-cloud?

e. How would you change the steam-cloud to large drops of water that will fall downwards?

2. Place each of the following in the proper column.

Air
Butter
Cloud
Cream

Glue
Honey
Ice-cream
Jelly

Mercury
Steam.
Water-vapour
Wax

Solid	*Liquid*	*Gas*

3. Name :

a. Two ways of making water change its form.

i. __________ ii. __________

b. Three sources from which the air receives water-vapour.

i. __________ ii. __________ iii. __________

c. Four things that affect the rate of evaporation.

i. __________ ii. __________

iii. __________ iv. __________

4. What is the difference between evaporation and condensation?

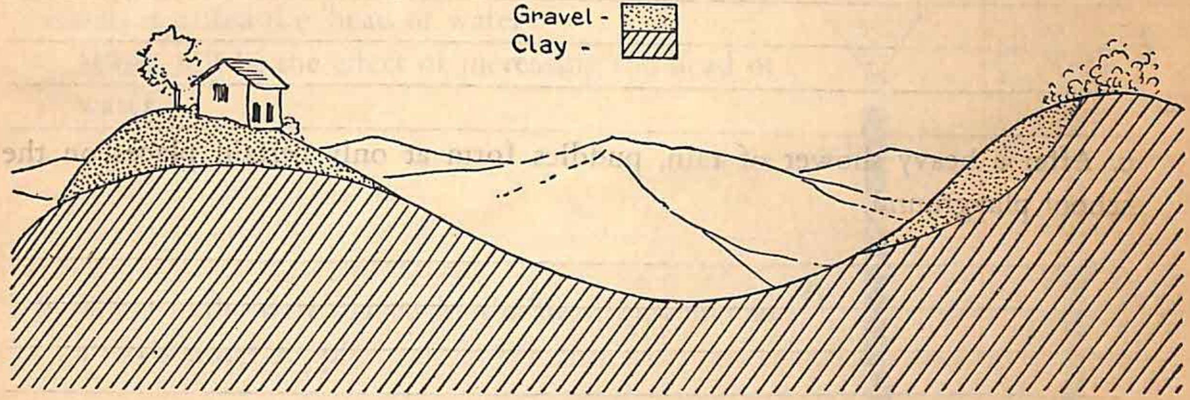
5. Sometimes a steam-cloud from a railway engine is to be seen for a long time; sometimes it vanishes quickly. Try to explain this.

NAME______________________________ CLASS______________ DATE______________

2

The Water Cycle

1. a. Mark on the picture the letter **S** at places where you would expect springs to form. Write the word **RIVER** where you would expect a river to form.



b. Will the springs give water all the year around? Explain your answer.

____

____

____

2. This is a list of a number of occurrences, each of which is a part of the Water Cycle. On the blank spaces at the left of each, write the numbers 1 to 9 to indicate the proper order in which they occur.

__________ Water vapour condenses.
__________ Seas and lakes receive water from rivers.
__________ Tiny drops join to form larger drops.
__________ Water evaporates.
__________ Rain falls.
__________ Water vapour fills the air.
__________ Streams and springs form.
__________ Tiny drops of water join themselves to dust particles.
__________ Rivers form.

3. Name four sources of water supply.

i.__________ ii.__________ iii.__________ iv __________

4. Give a reason for each of the following statements.
   a. A spring runs dry after a long period of drought.

   b. A rain-cloud is black in colour.

   c. After a heavy shower of rain, puddles form at only certain places on the school playground.

   d. Wells are not sunk in desert regions.

   e. The level of water in a well rises or falls according to the season.

5. You can make a cloud form in a bottle by pouring some hot water into it and placing a piece of ice on its mouth. Explain how the cloud forms.

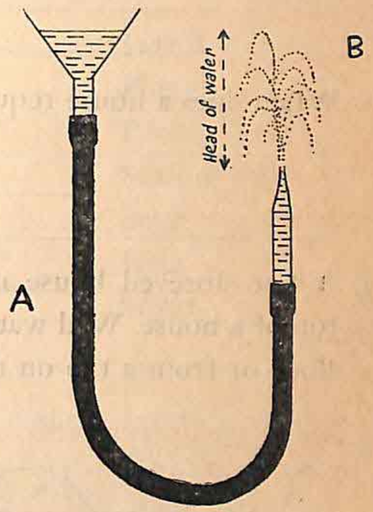
3

The Marvel of a Tap

1. The distance, as marked on the diagram, between two levels of water in a pair of communicating vessels is called the 'head of water'.

   a. What will be the effect of increasing the head of water?

   b. What is the part played by the head of water in a city's water-supply?



   c. If the funnel was brought down to position A, and at the same time the nozzle was raised to position B, what would happen to the level of water in each tube?

   d. What will happen if you put a finger over the nozzle and then lower it?

   e. What fact is demonstrated by this apparatus?

2. How does your city water-supply do the following things :

a. Separate dirt and rubbish from drinking water?

b. Kill germs in drinking water?

3. When does a house require a cistern on its terrace?

4. A two-storeyed house is being supplied with water stored in a cistern at the top of a house. Will water pour with greater force from a tap on the ground floor or from a tap on the second storey? Give a reason for your answer.

5. Two houses X and Y are supplied with water from a distant lake. X is situated at the top of a hill and Y lies at the foot of it. After a long period of drought the people living in X find that no water flows from their taps, but the people at Y have water flowing from their taps. Explain this.

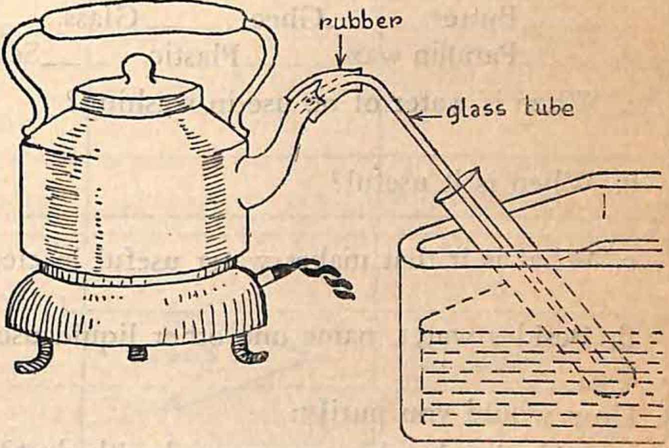
4

Salt and Water

1. On the blank space at the left of each substance write **X** if it will dissolve in water or **Y** if it will not dissolve in water.

______Air
______Alum
______Ash
______Bath powder
______Bread
______Camphor
______Candle wax
______Chalk
______Epsom salt
______Glycerine
______Hair oil
______Iodine
______Methylated spirit
______Paint
______Petrol
______Potato
______Resin
______Sealing wax
______Soap
______Soda
______Sugar

2. You have read in your text how to separate salt from its solution. Explain how you would use the apparatus shown to separate salt from its solution so as to obtain separate specimens of salt and the water in which it was dissolved.



3. Make a list of all the things you would not be able to do if the water-supply to your house failed for a day.

4. Dissolve some Epsom salt in a tumbler of hot water. With the help of a brush, paint a window-pane with the solution. What do you observe when the water evaporates? Try to explain your observations.

5. A well-used kettle has a lining of a hard-white substance. How do you think this substance was formed?

6. Find out by experiment which of the following substances melt easily, or melt with difficulty, or hardly melt at all. Then write the numbers 1 to 9 on the blank space before each substance to indicate the order of their melting.

_____Butter. _____Ghee. _____Glass. _____Glue. _____Ice.
_____Paraffin wax. _____Plastic. _____Sealing wax. _____Soap.

7. a. When is water of no use in washing?

b. When is it useful?

c. What is it that makes water useful in cleansing?

d. Besides water, name one other liquid used in cleansing.

8. How would you purify:

a. Milk that has become covered with dust?

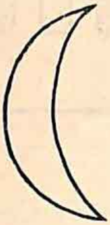
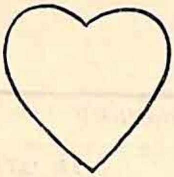
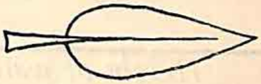
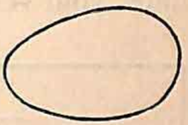
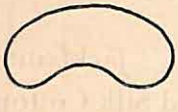
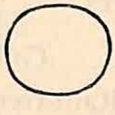
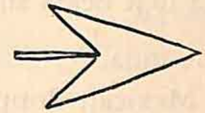
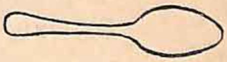
b. Salt that has become covered with dust?

NAME________________ CLASS________________ DATE________________

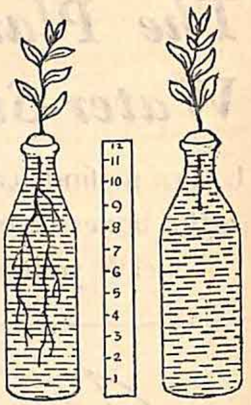
5

The Plant's Water-Supply

1. Try to find leaves that have the following shapes. Draw and colour them in the boxes below the shapes which they resemble. Write the name of the plant beneath your drawing of its leaf.

2. Compare the amount of water taken in by roots to that taken in by the stem as follows. Select two healthy herbs of the same kind of plant that have reached the same stage of development. Carefully pull them out of the soil. Remove all the soil from the roots of the first and cut off the roots of the second. Take two bottles of the same size and fill them with equal amounts of water. Put each plant in a separate bottle. Plug the mouth of each bottle with plasticine. Use a ruler to measure the height of water remaining in each bottle. Do this at a certain definite time every day. Enter your results in this table.



	Height of water remaining	
	In first bottle	*In second bottle*
After one day		
After two days		
After three days		

What have you learned from this experiment?

3. On the blank space at the left of each of the following plants write C if it bears compound leaves or S if it bears simple leaves.

______Banyan. ______Canna. ______Guava. ______Gul Mohr. ______Jackfruit.
______Mango. ______Mexican Poppy. ______Rain-tree. ______Red Silk Cotton.
______Tamarind. ______Sunflower. ______Zinnia.

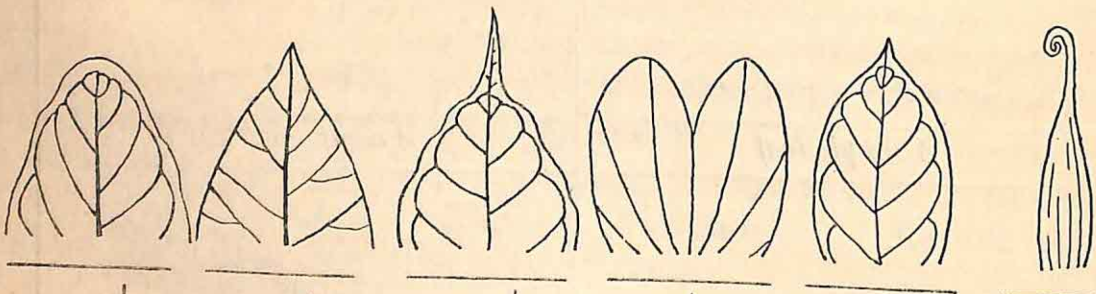
4. Tie a plastic bag over the leaves of a potted plant. Tie the open end of the bag about the stem. Make observations after an hour. Try to explain your observations.

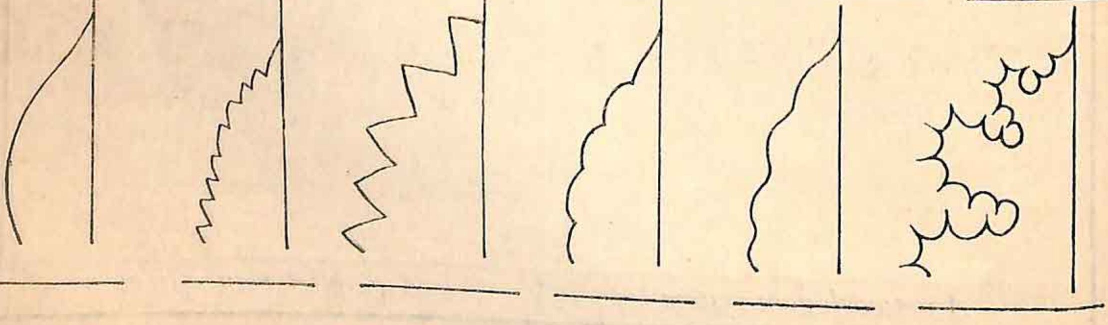
5. Make drawings in the spaces below to show the differences between:
   a. A terminal bud and an axil bud.
   b. A simple leaf and a compound leaf.
   c. A network vein system and a parallel vein system.

A terminal bud	*An axil bud*
A simple leaf	*A compound leaf*
A network vein system	*A parallel vein system*

6. State one way in which each of the following help the plant.
   a. Terminal bud.
   b. Axil bud.
   c. Leaf vein.
   d. Root.
   e. Leaf pore.

7. What plants have :
   a. Leaf tips as shown in the first row of pictures?
   b. Margins as shown in the second row of pictures?
   Look for them and write their names on the lines.



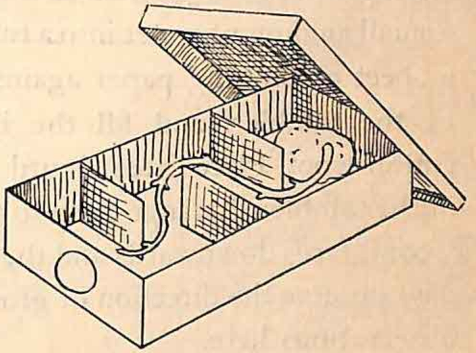


NAME________________________________CLASS__________________DATE_______________

6

Underground Stems

1. With the help of scotch tape, fix three half-partitions in a shoe-box as shown. Place a sprouting potato in the compartment furthest from you and cut a window in the side of the compartment nearest to you. Cover the box and place it on a window sill. Examine the growth of the potato stem every day, replacing the lid after you have done so.



a. Keep a record of its growth as follows :

Number of days to turn

First corner : ____________________

Second corner : ____________________

Third corner : ____________________

b. What does the stem do after turning the third corner?

____

c. Why does the stem move towards the window?

____

d. Repeat the experiment with another sprouting potato, and keep the window covered. Write your results here.

____

____

2. Grow a plant that will later grow underground stems, such as a Canna, or an Onion, or a Potato from seed. How soon does the underground stem develop? Write the name of the example you have chosen for your experiment.

____

3. What are the colours of the flowers of the following plants?

Grass____________Potato____________Onion____________Ginger__________

4. Look for a 'double onion' in the vegetable market. Cut it in half from top to bottom and draw it in this space. Label the following parts on your drawing: stem, terminal bud, axil bud, leaves, roots.

From what structure did the daughter onion develop?

____

____

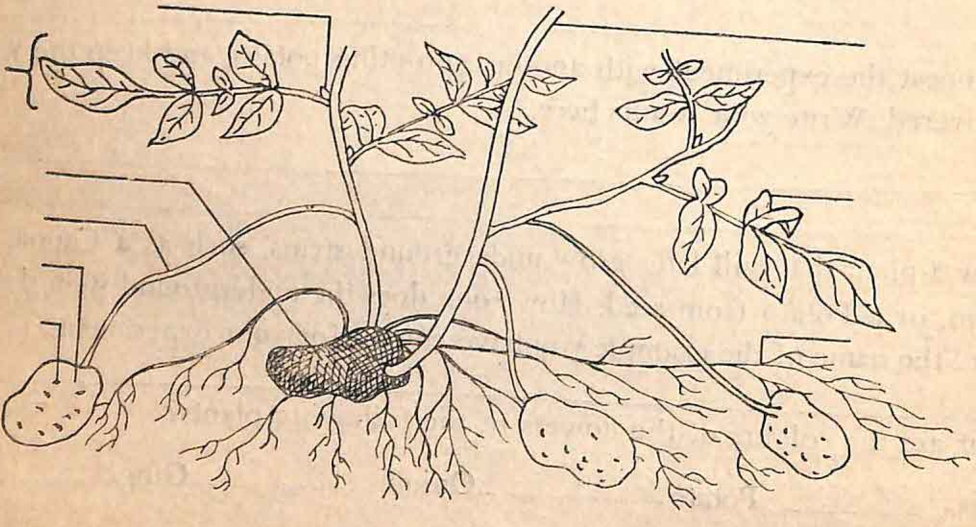
5. Fix up a 'tumbler garden' as follows. Pour a small amount of water into a tumbler. Roll a sheet of blotting paper against the sides of the tumbler, and fill the inside with cotton wool. Place three Gourd seeds between the blotting paper and the sides of the tumbler. Arrange them so that the scar of one faces upwards, the scar of the second faces downwards and the scar of the third faces to one side. After a few days observe the direction of growth taken by the root of each seed. Write your observations here.

First seed ______________ Second seed ______________ Third seed ______________

What do the results of this experiment show?

____

6. a. Label the parts to which the guide lines point.
   b. Draw a line on the diagram to show the soil level.

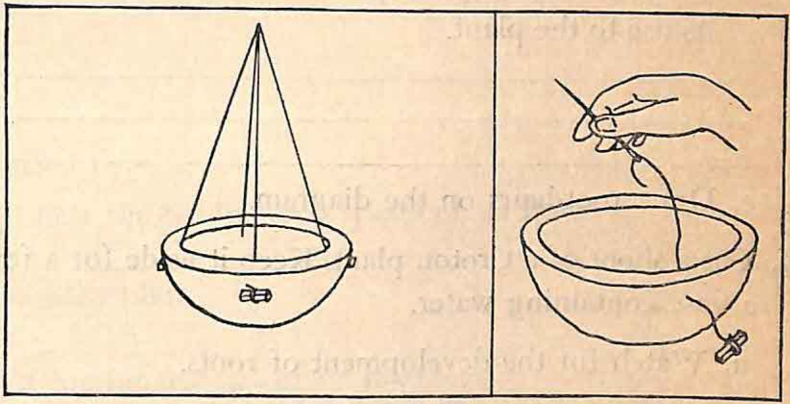


NAME________________ CLASS________ DATE________

7

Kinds of Roots

1. Here is a decoration for your 'den' at home. Cut off the thick end of a carrot and scoop out the inside so as to form a cup. Fasten three strings to the cup as shown and hang it up. Pour water into the scooped out portion. Be sure to fill the hollow with water every day and to keep it filled.



   a. Add to the drawing on the left to show the appearance of your 'hanging basket' after a week.
   b. Give an explanation of what happens.

____

2. Name :
   a. Three plants that grow from seeds, then flower, fruit and die within a single year.

      i. ________ ii. ________ iii. ________

   b. Two plants that grow from seeds, store food during the first year, then flower, fruit and die in the second year.

      i. ________ ii. ________ iii. ________

   c. Three plants that grow for many years, producing flowers and seeds year after year.

      i. ________ ii. ________ iii. ________

3. a. What kind of root system is shown in the diagram?

____

b. Name three plants which have such a root system.

i. ____________ ii. ____________ iii. ____________

c. Write the numbers 1 to 3 in the circles in the diagram to indicate the order of root development from oldest to youngest.

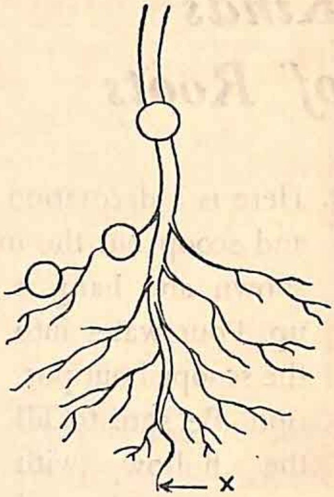
d. Write the name of the part labelled X, also write its use to the plant.

____

____

____

e. Draw root-hairs on the diagram.



4. Cut a shoot of a Croton plant. Keep it aside for a few hours and then put it in a vase containing water.

a. Watch for the development of roots.

b. What is the name given for such a kind of root system?

____

c. Pull up a Croton from the garden. What root system does it have?

____

5. You learnt last year that the baby root always comes first out of the seed. Can you think of a reason why this should be so?

____

____

6. The delicate root-hairs of a plant may be observed by growing Mustard seeds on a towel, one end of which is dipped in a basin of water. Try it!

7. On the blank space at the left of each plant, write **F** if it has fibrous roots; **T** if it has a tap-root and **FT** if it has both fibrous and a tap-root.

______Banyan. ______Carrot. ______Croton. ______Grass. ______Ivy.

______Maize. ______Money plant. ______Mustard. ______Radish. ______Snapdragon.

8

How Plants Protect Themselves

1. What is the difference between each of the following pairs?
   a. Thorns and spines.

   ____

   ____

   b. Hairs and prickles.

   ____

   ____

2. What structure is possessed by
   a. The Shoeflower to protect the tender inner parts of its flower?

   ____

   b. The Pea to protect its baby plant?

   ____

   c. The Mango to protect the inner parts of its stem?

   ____

   d. The Banyan to protect the tips of its hanging roots?

   ____

3. How do the following plants protect their store of food?
   a. Onion. ______________________________
   b. Beetroot. ______________________________
   c. Potato. ______________________________

4. a. When do plants desire certain of their parts to be eaten?

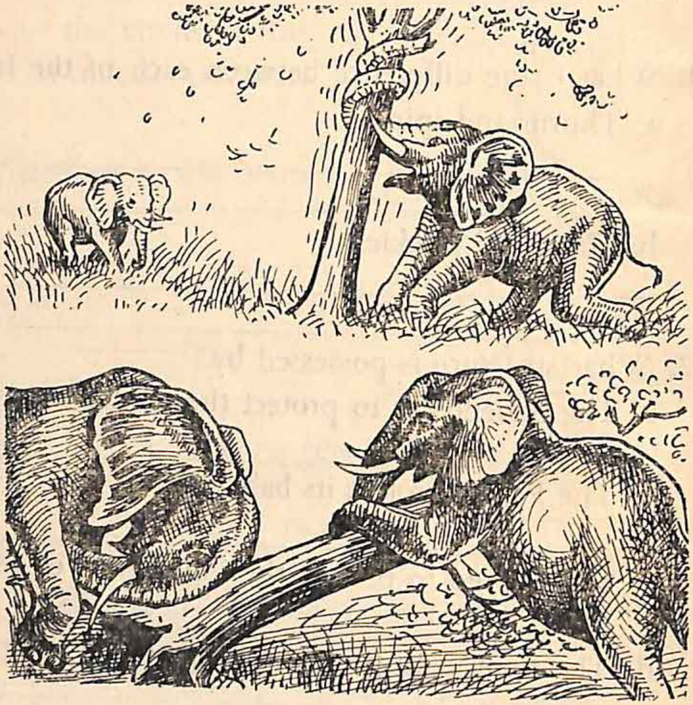
   ____

   ____

   b. State two attractions these parts have in order to be eaten.
   i. ______________________________
   ii. ______________________________

5. Name three plants that have no defences at all and are cooked and eaten by us.
i. ______ ii. ______ iii. ______

6. Trees protect their foliage by raising it far above the earth. The Giraffe has a long neck to feed on the foliage of trees. Describe how these two elephants have teamed together in order to obtain their food.

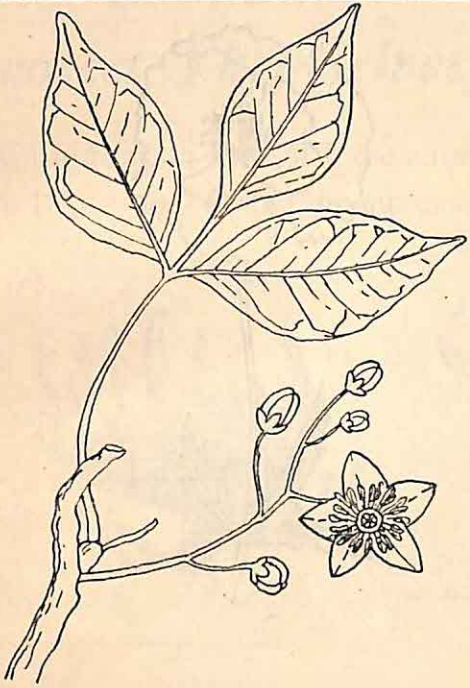


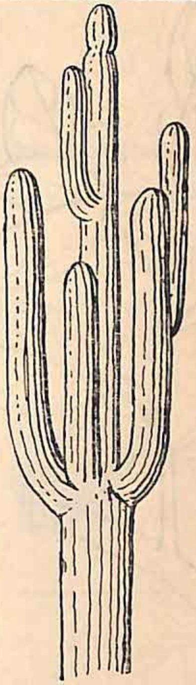
7. Search for an example of each of the following. Write it on the proper line. Try not to use the examples given in your text.
a. A plant with its leaf-tip ending in a spine. ______
b. A plant with thorns. ______
c. A plant with spines. ______
d. A plant with prickles. ______
e. A plant with leaves that are covered with hairs. ______
f. A plant with latex. ______
g. A plant with a repulsive smell. ______

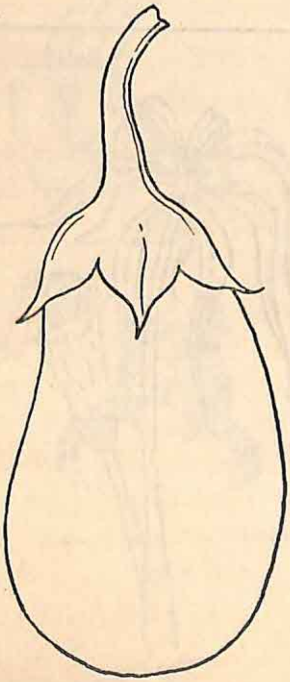
8. Can you explain why there is always grass on a maidan even though cattle are allowed to graze there? ______

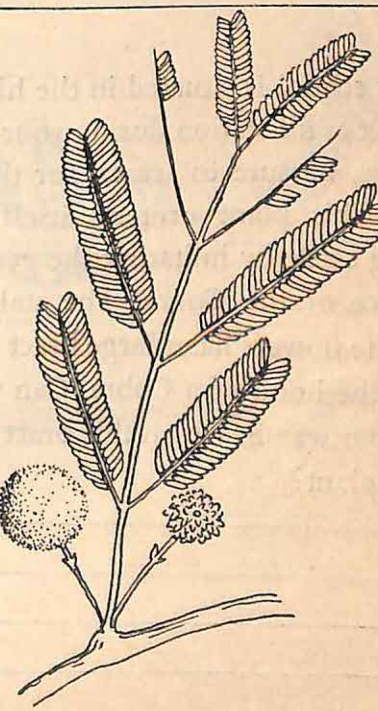
NAME________________________ CLASS____________ DATE____________

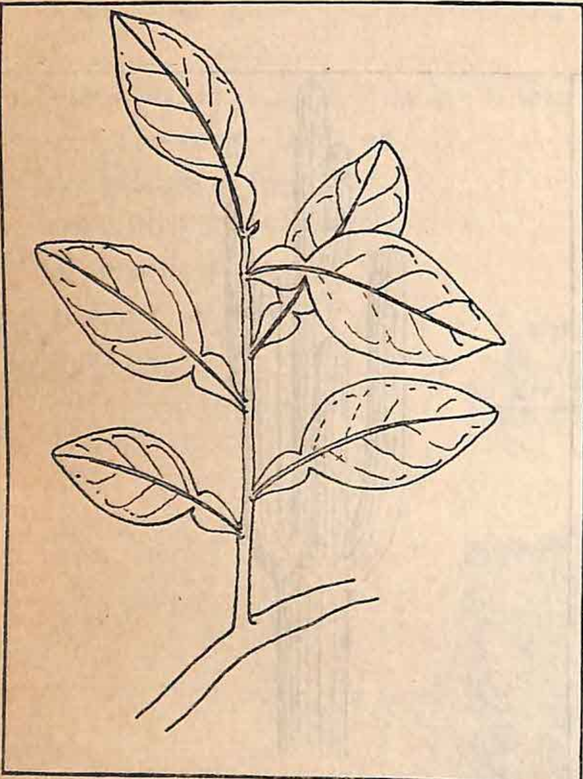
9. At the side of each plant write its name and then fill in its weapons so as to complete its picture.

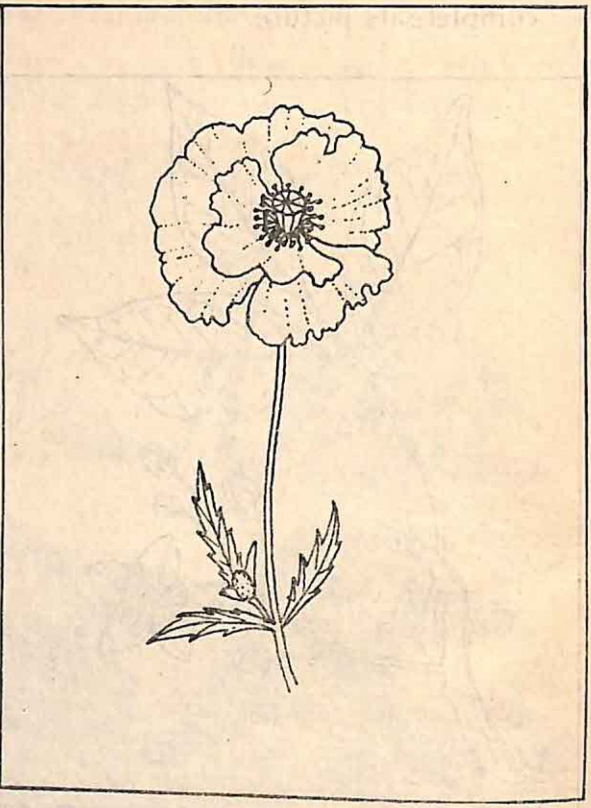




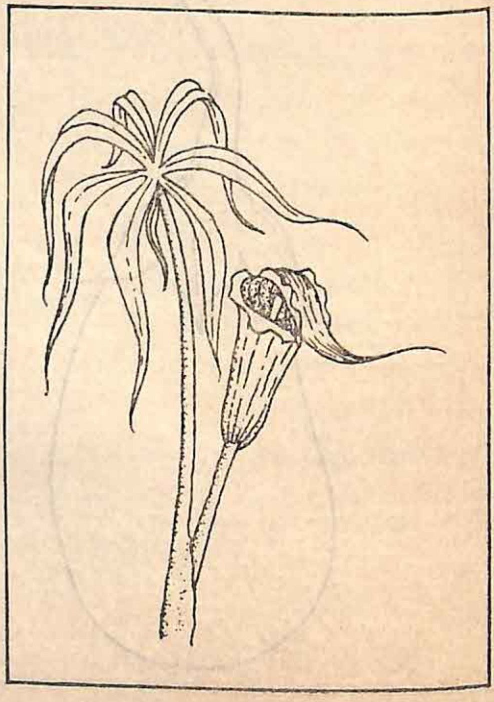








10. If your school is situated in the hills, or if you visit a hill-station during your summer holidays, be sure to search for the Snake plant. This plant protects itself against grazing cattle by imitating the general appearance of the Cobra. The stalk which bears the flowers has a large bract covering it like the hood of a Cobra. Can you state one other way in which this bract is useful to the plant?



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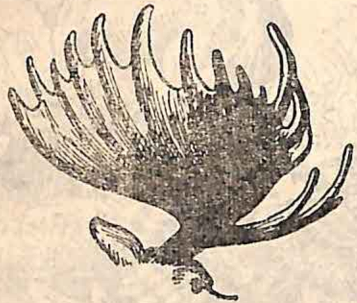
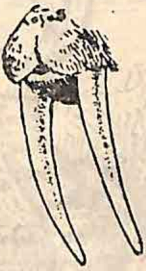
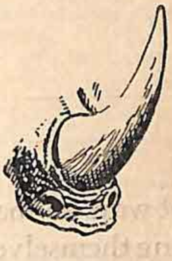
9

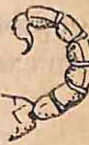
How Animals Protect Themselves

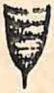
1. Write beneath each of these animal weapons the name of the animal possessing it. If you have visited the museum this should be easy for you to do.

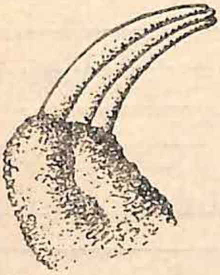


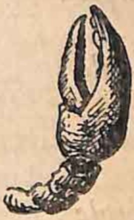


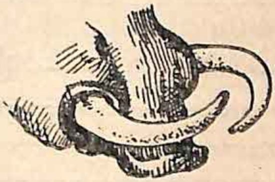


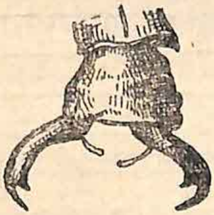


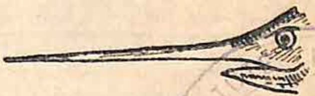












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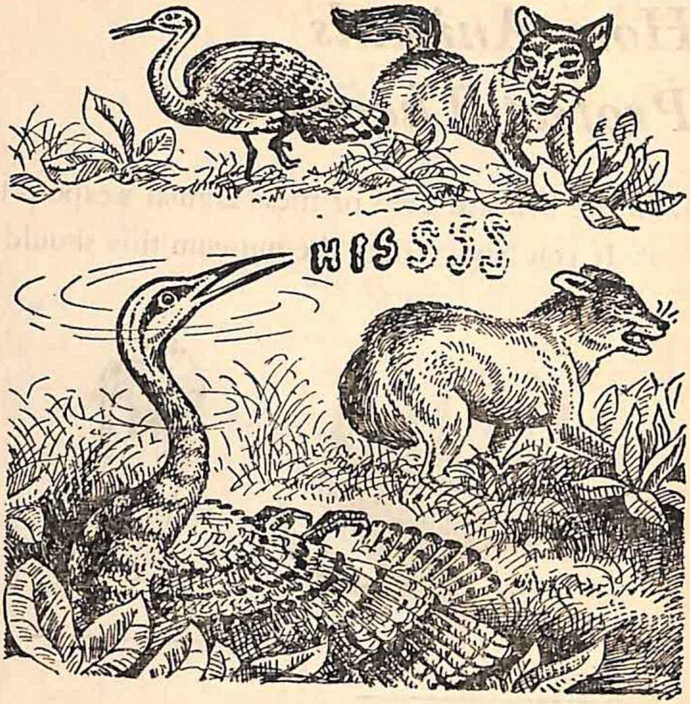
2. Study the picture. Describe how the bird, called the Sun Bittern is protecting itself.



3. List ten different ways animals have of protecting themselves. Give an example for each.

i.

Example :

ii.

Example :

iii.

Example :

iv.

Example :

v.

Example :

vi.

Example :

vii.

Example :

viii.

Example :

ix.

Example :

x.

Example :

10

Animals in and around the Tank

1. State one way, different in each case, by which each of the following are fitted for a life in and around the tank.

   a. Kingfisher.

   b. Egret.

   c. Fish.

   d. Frog.

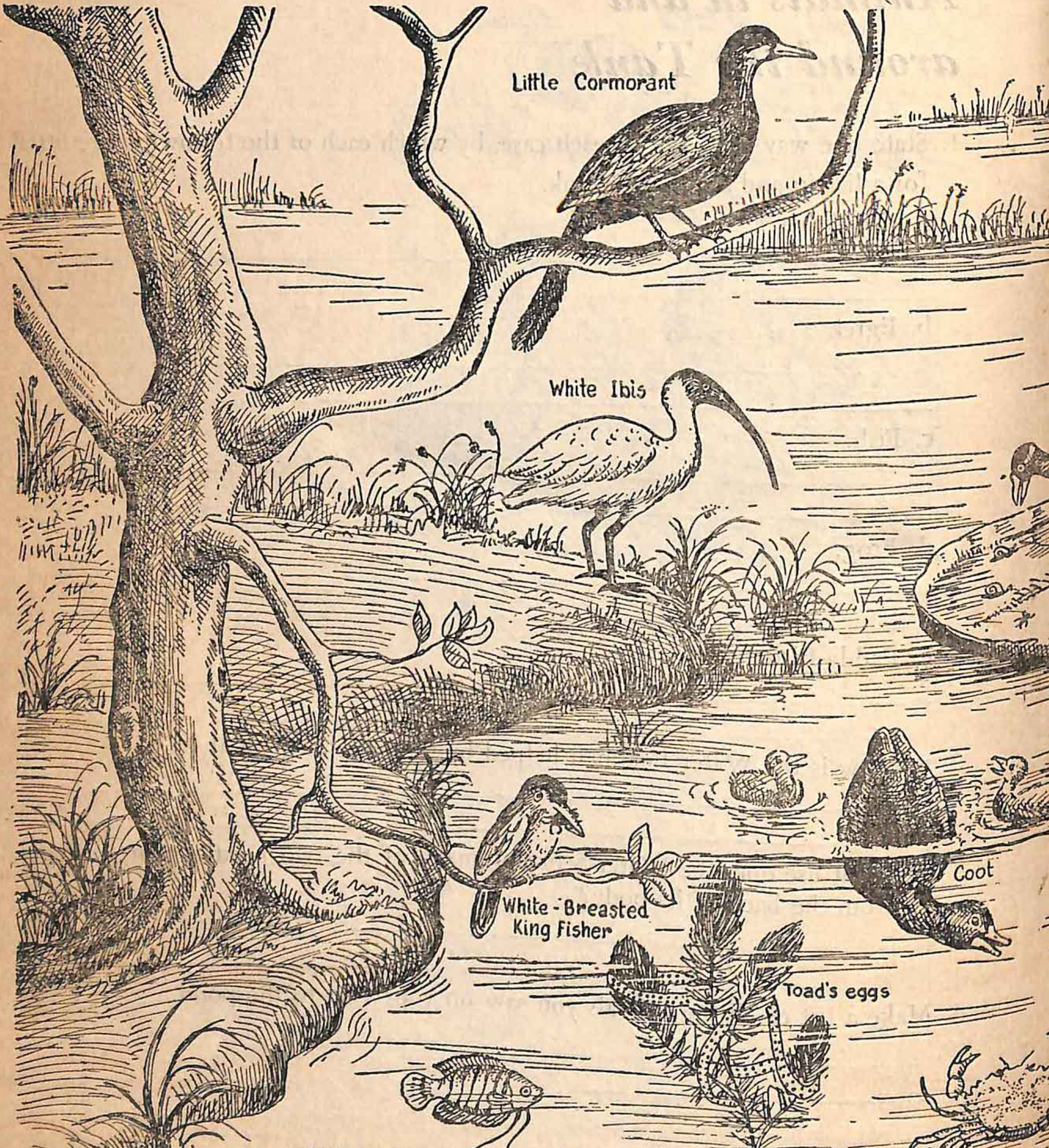
   e. Paddy-Bird.

2. a. How is the Water Boatman helped by the hairs on its belly?

   b. What use does the Water Scorpion make of the two needles that stick out from the back of its body?

3. Make a list of all the animals you saw on your visit to the pond.

4. Study this picture for fifteen minutes, then turn the page and answer the questions.



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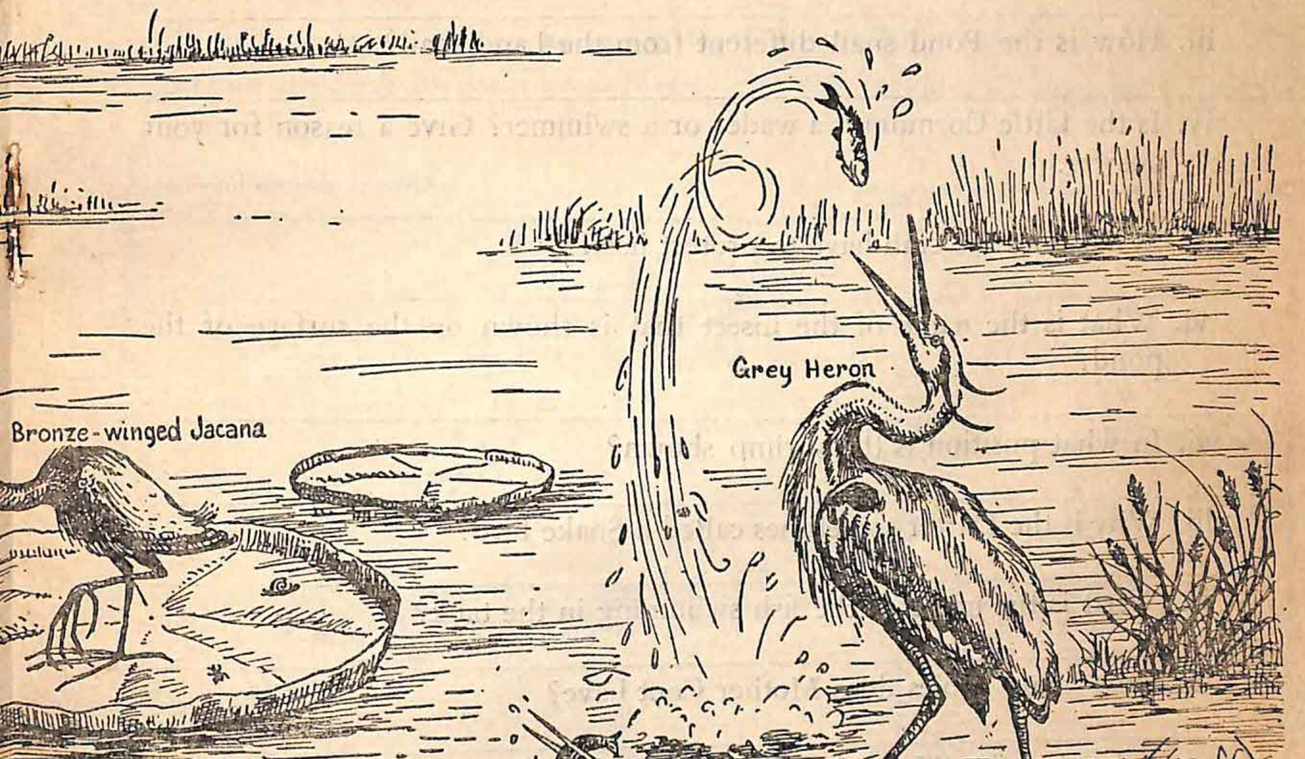

b. Answer these questions.

i. What is the Leech doing?

ii. What is shown in the beak of the White-breasted Kingfisher?

iii. How is the Pond snail different from the Land snail?

iv. Is the Little Cormorant a wader or a swimmer? Give a reason for your answer.

v. What does the crab have to protect itself?

vi. What is the name of the insect that is shown on the surface of the pond?

vii. In what position is the shrimp shown?

viii. Why is the Darter sometimes called a Snake bird?

ix. What is the name of the fish swimming in the tank?

x. How many babies does Mother Coot have?

xi. What has the Water Scorpion captured?

xii. How many fish are there in the picture?

xiii. What is the name of the bird that tosses its prey in the air and then swallows it head foremost?

xiv. How are Toad's eggs different from those of a Frog?

xv. Name the things that the Bronze-winged Jacana has collected to eat on its 'platter'.

xvi. What parts of the White Ibis are coloured black?

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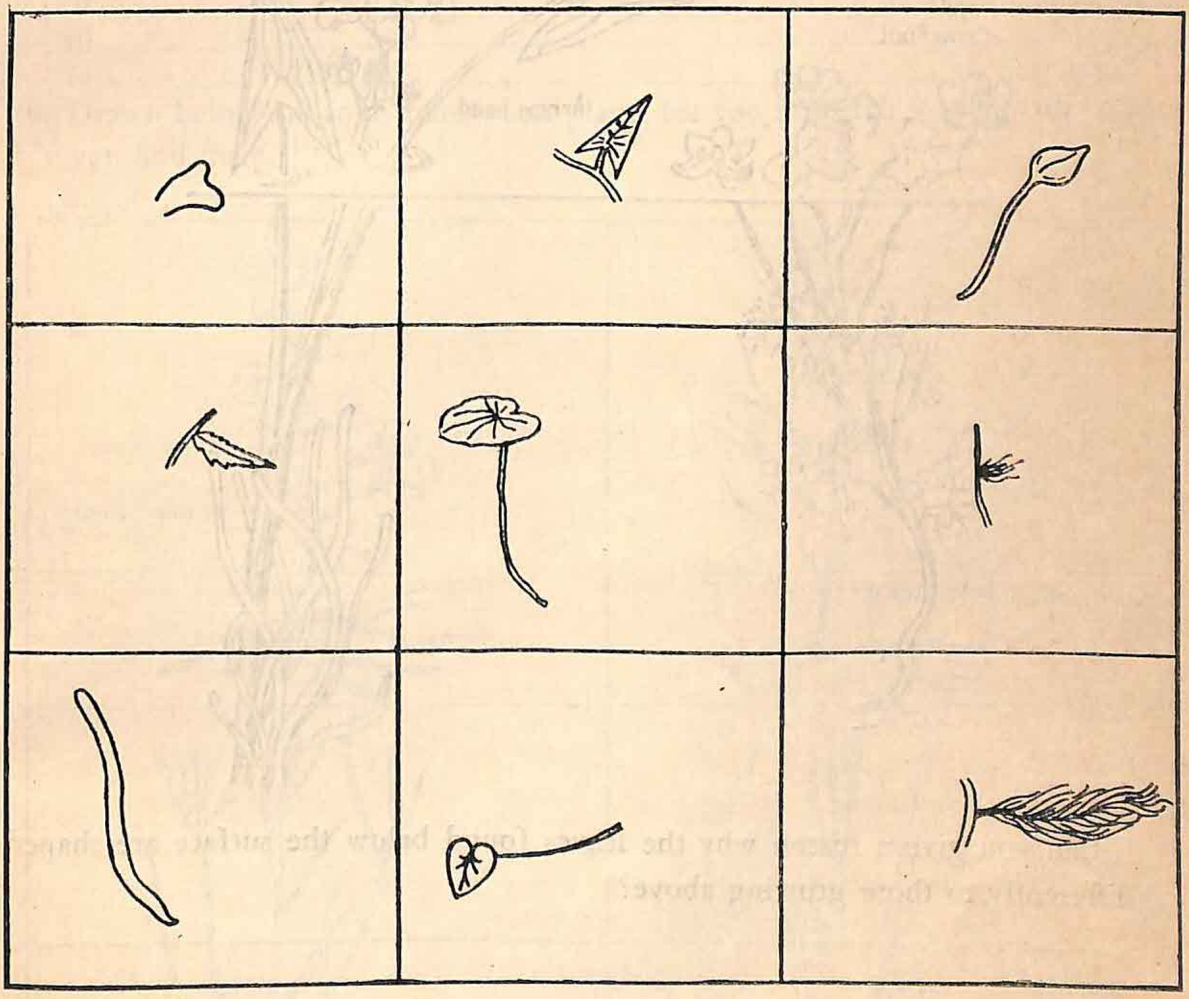
11

Water-Weeds

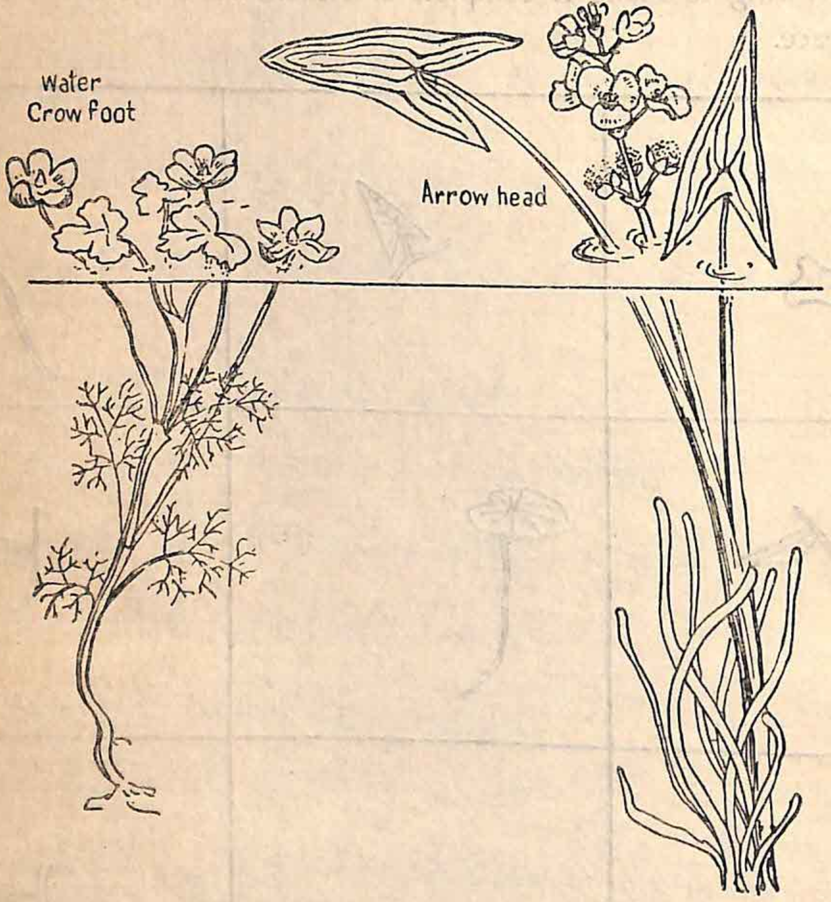
1. In each space is drawn a single leaf of a water-plant. Add a few more leaves to the drawing to make it complete and then write the name of the plant in the space.



2. Cut through the fleshy stem of a water plant. Try to give a reason why such a plant has the air spaces you will see in its stems.

____

3. The Water-Chestnut has two different kinds of leaves, those floating on the surface are diamond shaped, while those below are feathery. Look for the plants drawn on this page during your visit to a pond. They are further examples of water plants bearing two different kinds of leaves. When you find these plants colour their pictures.



Can you give a reason why the leaves found below the surface are shaped differently to those growing above?

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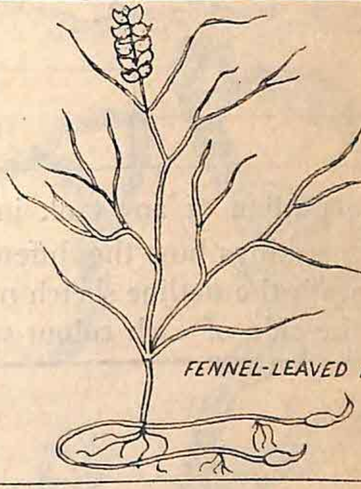
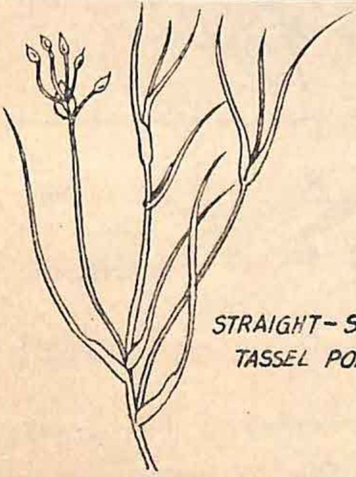
4. Which among the water-plants described in your text:
   (a) is an example of a runner?______________________
   (b) is an example of a rhizome?______________________
   (c) has the undersurface of its leaves coloured red or yellow?______________________
   (d) has yellow flowers?______________________
   (e) bears fruits which are sold in the vegetable market?______________________

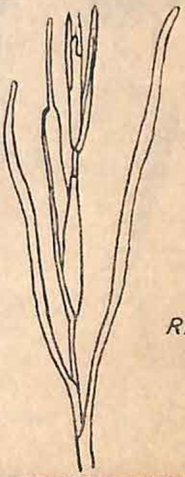
5. State four ways by which water-plants help water-animals.______________________
   i.______________________
   ii.______________________
   iii.______________________
   iv.______________________

6. Drawn below are four more water-plants for you to search for and colour when you find them.

PRIMROSE - WILLOW


FENNEL-LEAVED PONDWEED


STRAIGHT-STEMMED TASSEL PONDWEED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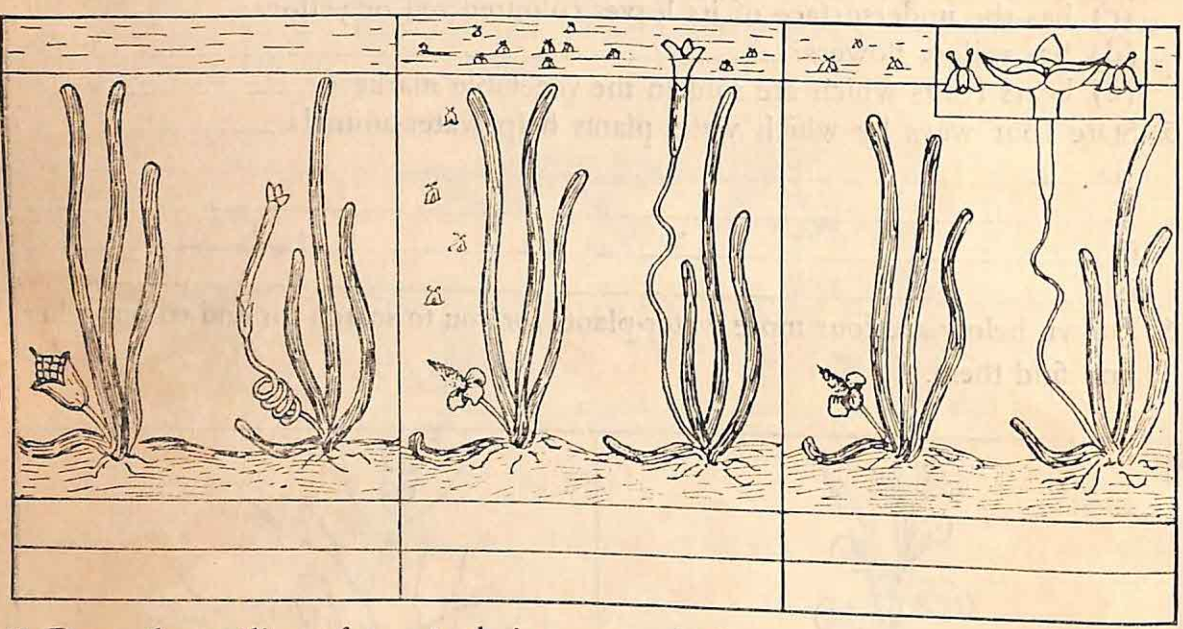
7. Water helps the Tape-Grass to transfer its pollen grains from the anthers of the male plant left to the stigma of the female plant right. The picture story below shows how this is done. Give each picture a caption.



8. Draw the outline of any tank in your neighbourhood. Show by means of coloured markings how the different plants are distributed in and around the tank. Beneath the outline sketch make a key of the colours you have used and write at the side of each colour-symbol the name of the plant it represents.

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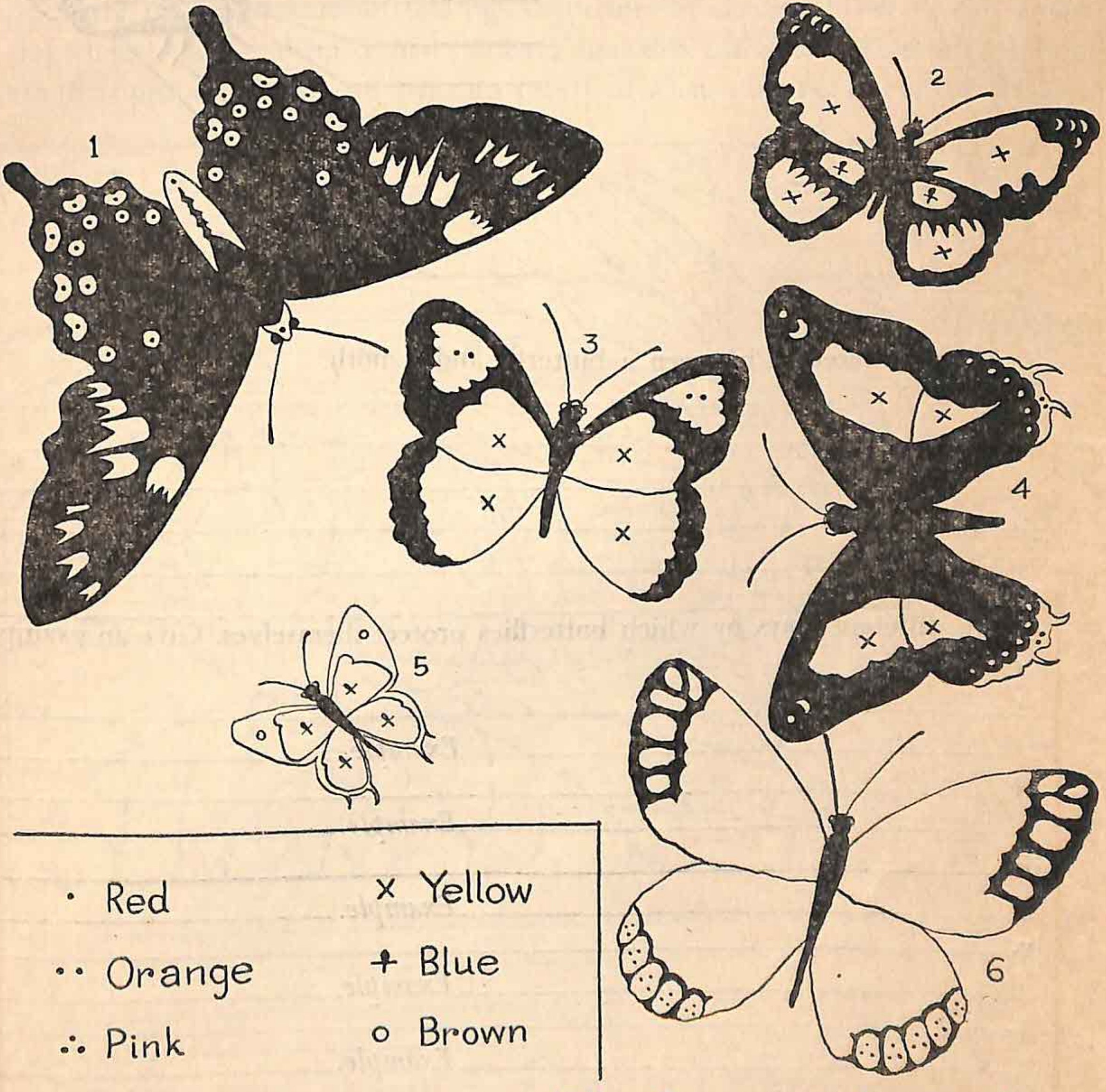
12

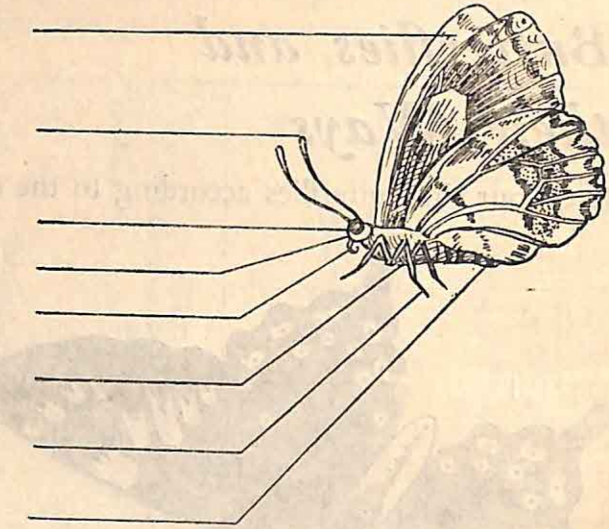
Butterflies and their Ways

1. Colour the butterflies according to the colour key given below.



1. Crimson rose. 2. Yellow Pansy. 3. Yellow Orange tip. 4. Common Nawab. 5. Peacock Royal. 6. Common Jezabel.

2. Label the parts to which the guide lines point.



3. State:

a. Three differences between a butterfly and a moth.

b. Six different ways by which butterflies protect themselves. Give an example for each.

i.

Example.

ii.

Example.

iii.

Example.

iv.

Example.

v.

Example.

vi.

Example.

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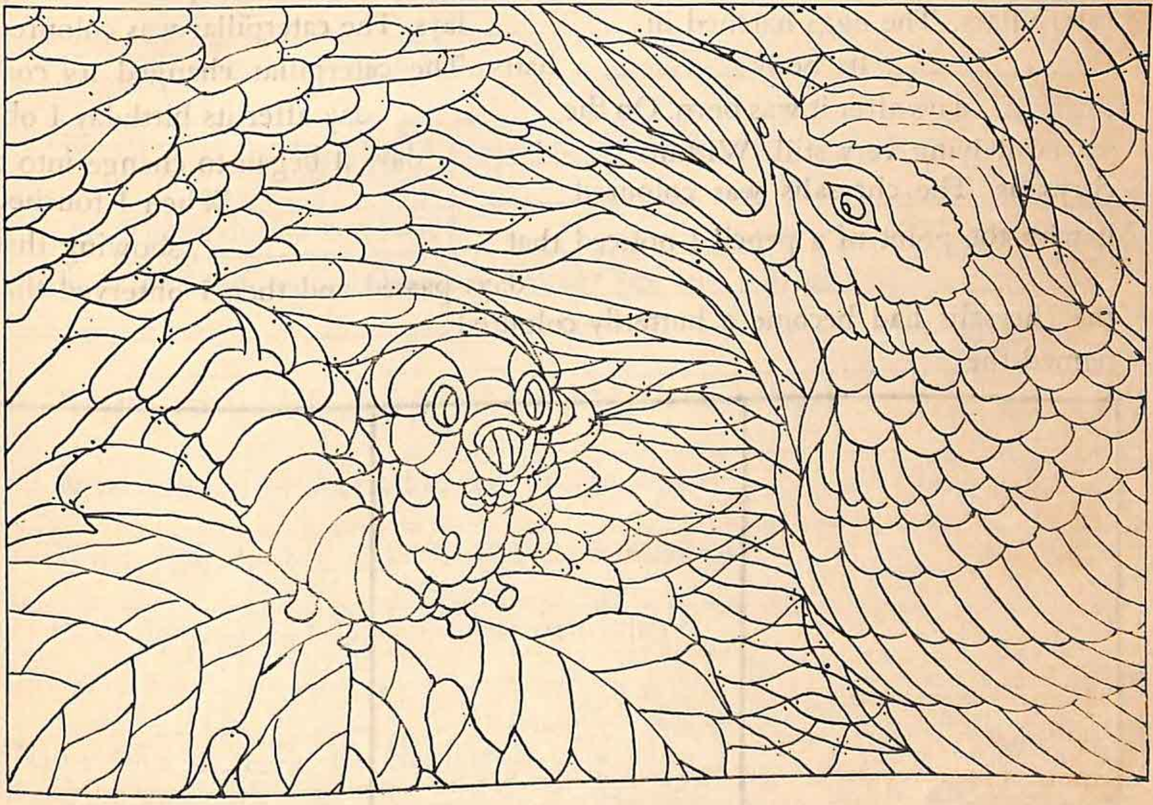
13

Babies of a Butterfly

1. You can solve the secret of this jig-saw picture by shading black all the spaces which have dots in them. When you have done this, colour the remaining portion in their proper colours and make up a story of what is happening in the picture.



2. State five differences between a butterfly and a caterpillar.

   i. ______________________________
   ii. ______________________________
   iii. ______________________________
   iv. ______________________________
   v. ______________________________

3. Fill in the blank spaces with facts you obtained from the study you made of any one butterfly's life-history.

One day, while walking in the garden, I found the eggs of a butterfly laid on the leaves of ______________ plant. I took them home and kept them in my caterpillary. The eggs hatched in __________ days. The caterpillar was coloured __________. Its body __________ hairs. The caterpillar changed its coat __________ days after it was born. On the __________ day after its birthday I observed it lying very still. Within ______________ days it began to change into a chrysalis. The chrysalis was coloured ______________. When I touched it with the point of a pencil I noticed that ______________, showing that ______________. ______________ days passed and then I observed that the chrysalis had become a butterfly coloured ______________ named the ______________.

My drawing of the Caterpillar	*My drawing of the Chrysalis*	*My drawing of the Butterfly*

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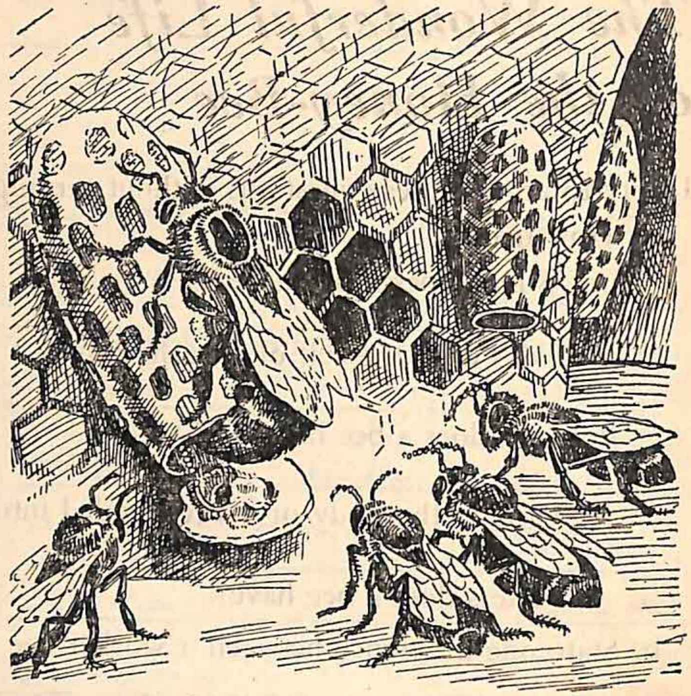
14

The Wonderful Life of the Honey-Bee

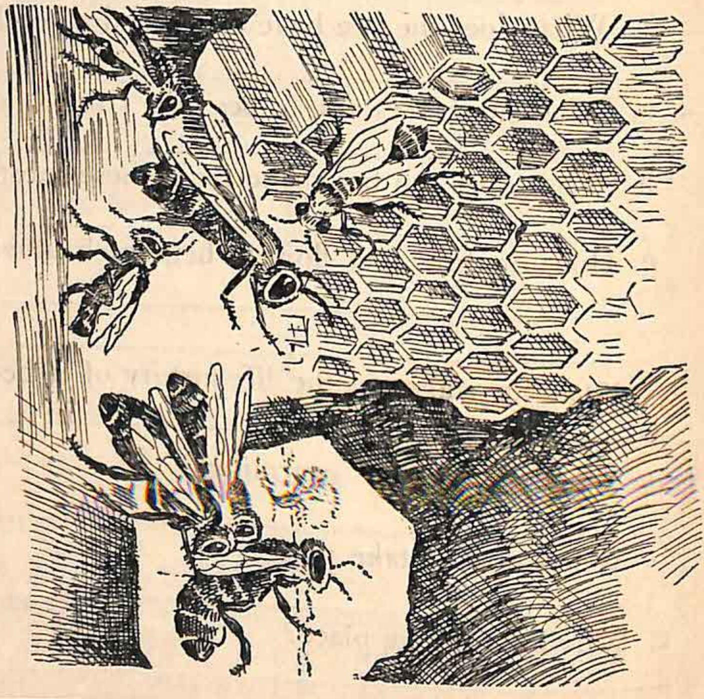
1. Try to answer these questions without turning the page.
   a. How many:
      i. Wings does a bee have?
      ii. Sides does the cell of a beehive have?
      iii. Legs does a bee have?
      iv. Parts is the body of a bee divided into?
      v. Feelers does a bee have?
   b. State one difference between a worker bee and a drone.
   c. What does the bee have at the end of each of its legs?
2. a. What substances does a bee take from a flower?
   b. What does the bee make from these substances?
   c. How do bees and flowers help each other?
3. Name four stages in the life-history of a bee.
   i.__________ ii.__________ iii.__________ iv.__________
4. a. What is meant by 'swarming'?
   b. When does it take place?
   c. Why does it take place?

5. Give each picture a caption and write a story of what you see happening in the picture at the side of it.

a. ______________________



b. ______________________



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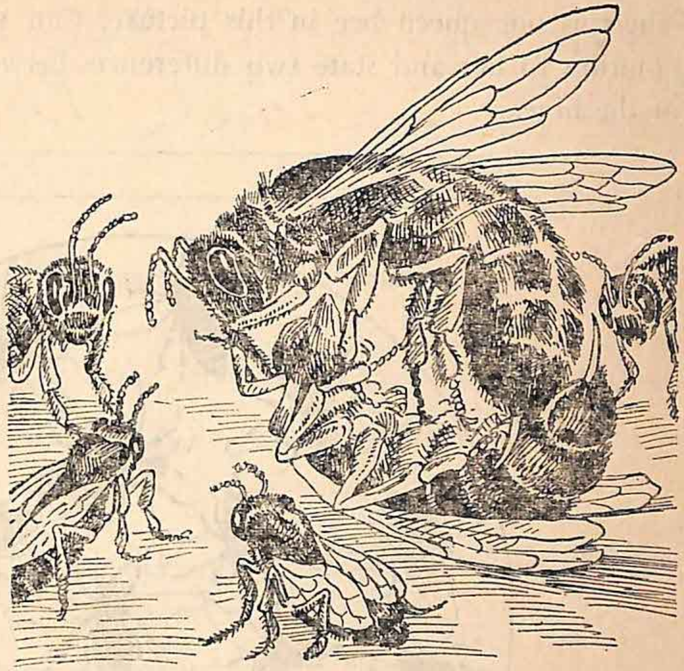
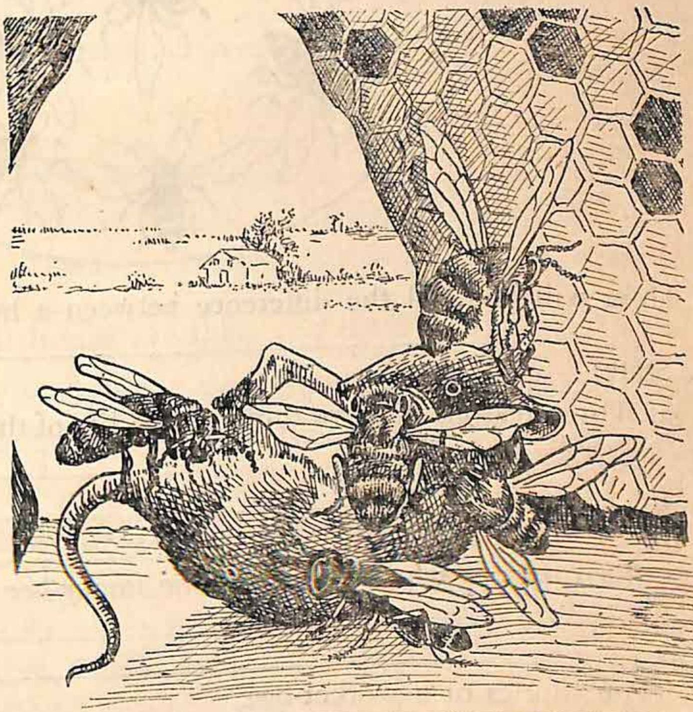
c. ____________________



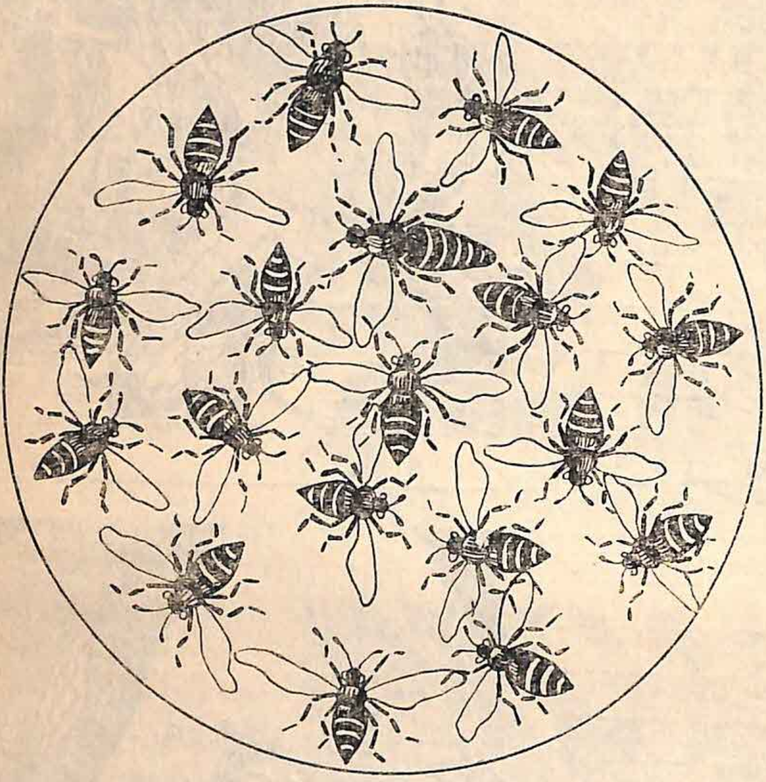
d. ____________________



6. There is one queen bee in this picture. Can you find her? Draw an arrow pointing to her and state two differences between her and the other members of the hive.

i. ______

ii. ______



7. How will you tell the difference between a honey-comb and a brood-comb?

______

8. State:

a. Three reasons why we think of the life of the honey-bee as being wonderful.

i. ______

ii. ______

iii. ______

b. Two reasons why we think of the honey-bee as a valuable insect.

i. ______

ii. ______

c. Four duties of a worker-bee.

i. ______ ii. ______

iii. ______ iv. ______

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15

Lizards, Big and Small

1. Why are geckoes attracted to the electric light of a room?

2. How do the feet of (a) a Crocodile, (b) a Skink and (c) a Gecko help each animal in its way of life?

   a.__________

   b.__________

   c.__________

3. In what way are the eyes of a Gecko different from our own?

4. Describe the way a Gecko catches an insect.

5. State three ways in which all lizards are alike.

   i.__________

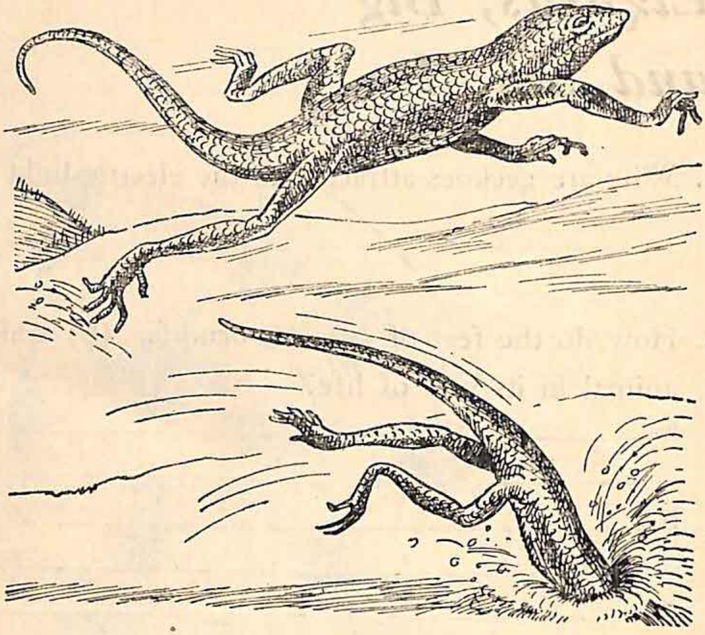
   ii.__________

   iii.__________

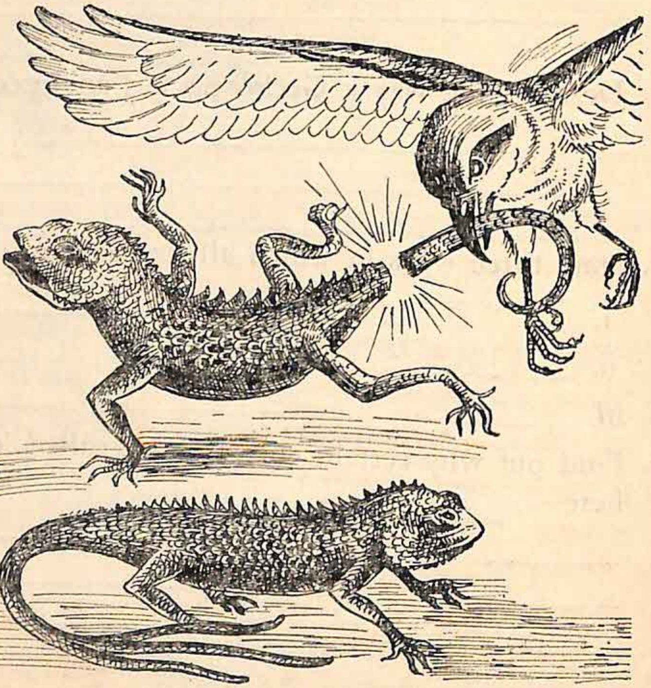
6. Find out why certain creatures are called 'cold-blooded' and write the reason here.

7. Describe how each of these lizards defend themselves in time of danger.

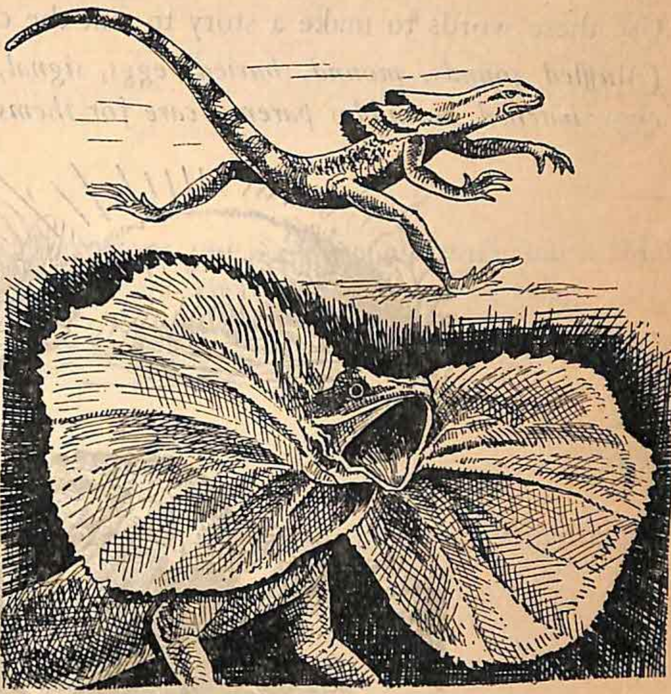
a.



b.



c. ______________________________

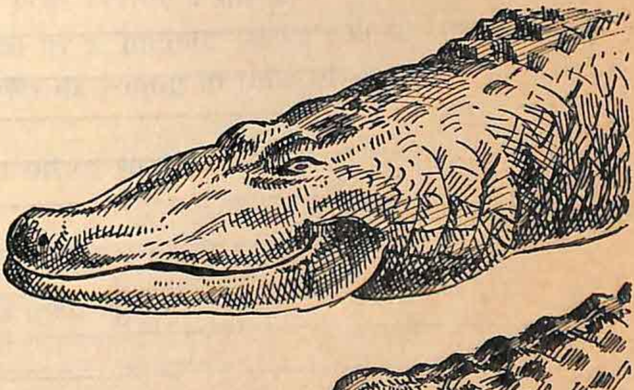


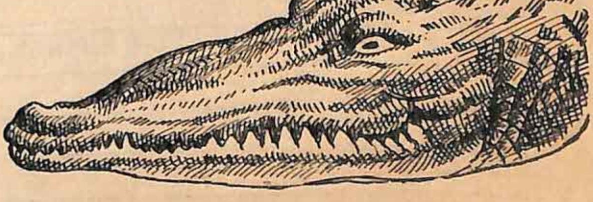
8. Study these pictures of the head of a crocodile below, and the head of an alligator above. Try to find three differences between them.

i. ______________________________

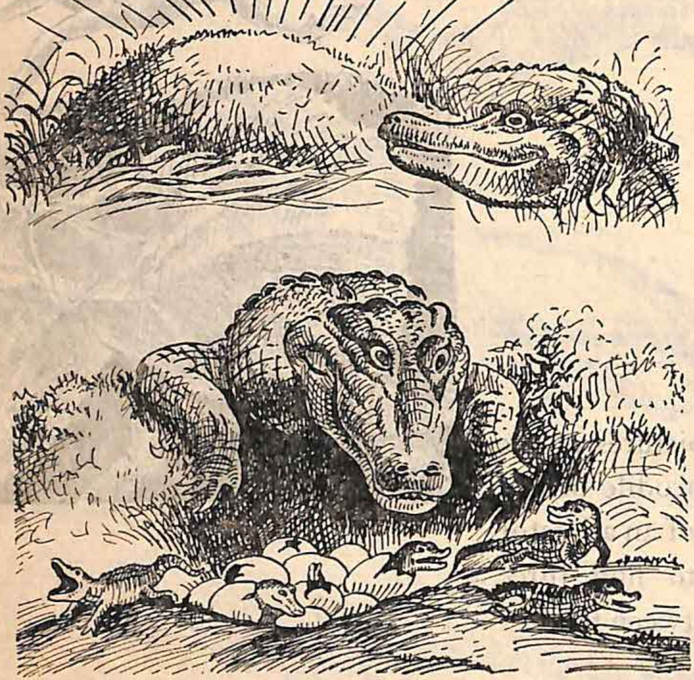
ii. ______________________________

iii. ______________________________





9. Use these words to make a story to suit the caption of the picture.
(*Muffled sounds, mound, buried, eggs, signal, mother helps, removes covering, eggs, hatched, resembles parents, care for themselves*)



How the Alligator hatches her babies

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16

Fearsome Creatures

1. In our country there are many superstitions and beliefs concerning snakes. Mark X against any of the following statements which you know to be false.

______________ i. A viper can usually be distinguished by a V-shaped mark on its head.
______________ ii. Snakes never close their eyes.
______________ iii. The scales of a snake are slimy.
______________ iv. Killing a snake will bring its mate searching for vengeance.
______________ v. Only poisonous snakes have fangs.
______________ vi. All snakes lay eggs.
______________ vii. No snake eats plant food.
______________ viii. Nearly all snakes eat other snakes.
______________ ix. Snakes hypnotise their prey.
______________ x. Snakes jump at people.
______________ xi. Some snakes have a poisonous sting in their tails.
______________ xii. A snake can run as fast as a horse.
______________ xiii. A snake leader goes before a snake.
______________ xiv. If you are bitten by a 'minute' snake you die in a minute.
______________ xv. A snake swallows its young in time of danger.

2. How is the Cobra different from other snakes?

____

____

3. Why is a snake unable to hatch its own eggs?

____

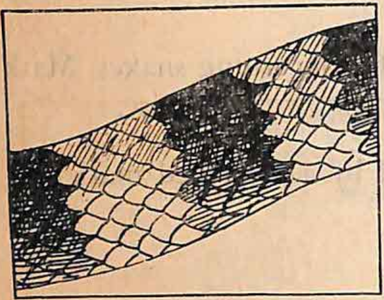
____

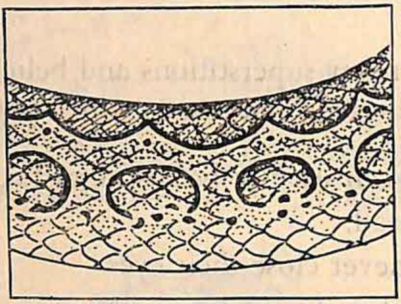
4. Why does a snake constantly put its tongue out?

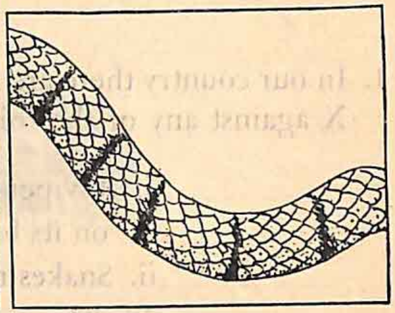
____

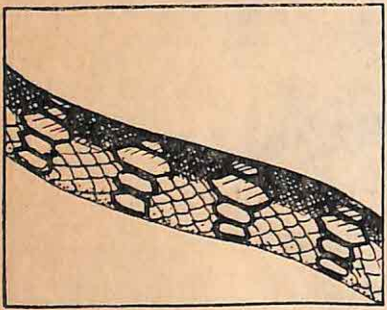
____

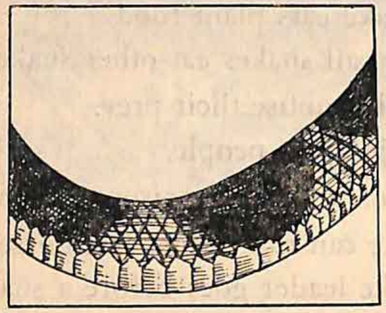
5. Can you recognise snakes by their coats? If you are not able to do this, search for the answers to this puzzle at the zoo. Write the name of the snake on the first line below the picture of its coat and write poisonous or non-poisonous on the second line. Colour the pictures.

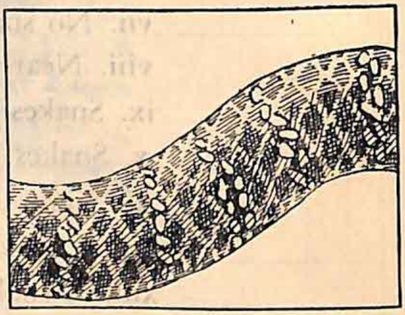












6. What is the difference between the way a snake and a lizard sheds its skin?

7. There are nine snakes named and pictured in your text. How many can you remember?

i. ______ ii. ______ iii. ______
iv. ______ v. ______ vi. ______
vii. ______ viii. ______ ix. ______

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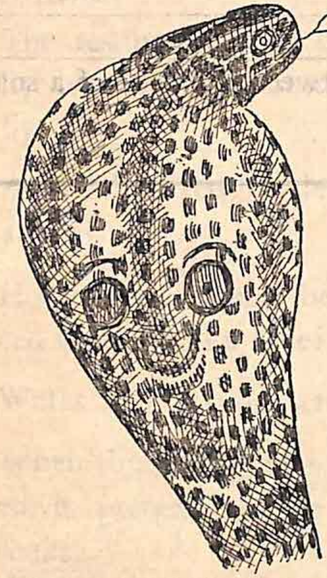
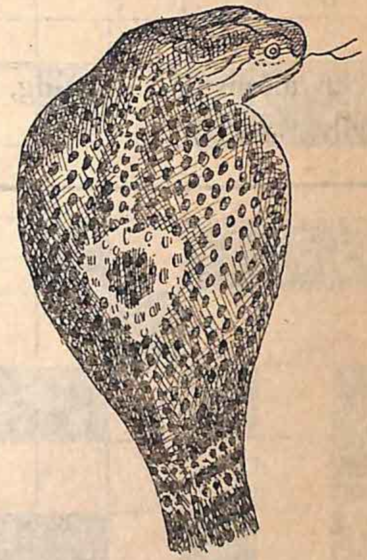
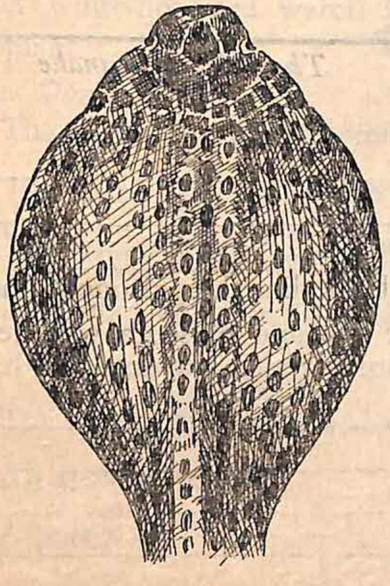
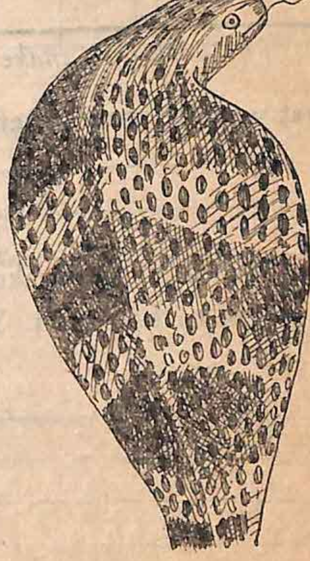
8. Do you know that there are ten different varieties of Cobras found *in the world*, four of which are to be found in India? These are the King Cobra, the Common Indian Cobra, the Burmese Cobra and the Black Cobra. All four are pictured here. Can you tell one from the other? Look for them at the zoo and write the name of each in the proper square.









9. A snake has no teeth meant especially for biting or chewing its food. What use does it make of its teeth?

10. A snake is able to climb a tree even though it has no hands, it is able to swim even though it has no fins, it is able to move rapidly along the ground even though it has no legs; what is it that helps the snake to do all these things?

11. Show, by means of a drawing, the difference between the back of a snake and its belly.

The back of a snake	*The belly of a snake*

12. In what way are snakes useful?

13. Make a list of all the snakes in your State. Underline the poisonous ones. Ask your elders to help you. Your visit to the zoo and museum will help you further.

NAME________________________CLASS________________DATE________________

Test Yourself on the Year's Work

1. Do you like Crossword puzzles? Try this one.

Clues Across

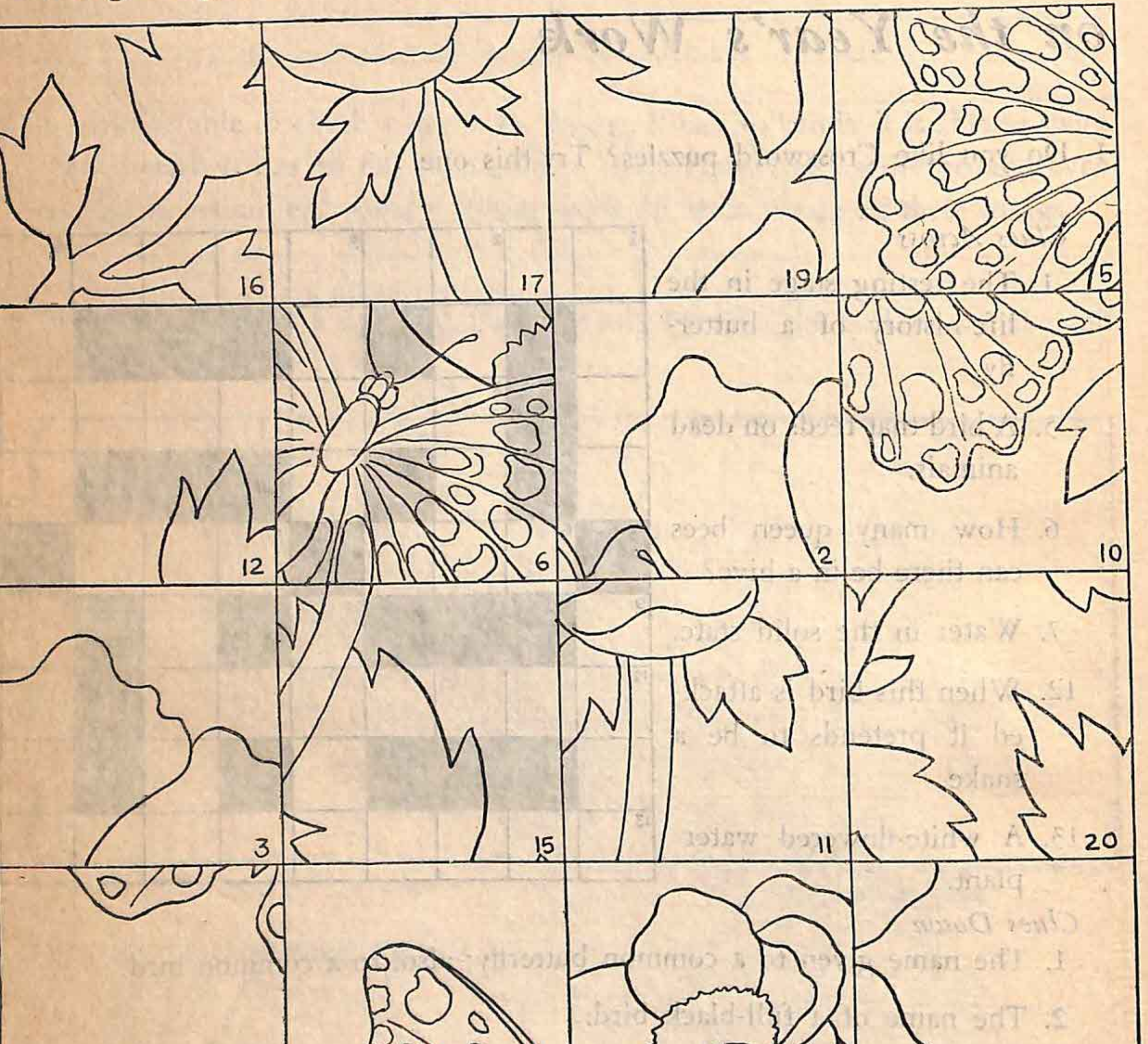
1. The resting stage in the life-history of a butterfly.
5. A bird that feeds on dead animals.
6. How many queen bees can there be in a hive?
7. Water in the solid state.
12. When this bird is attacked it pretends to be a snake.
13. A white-flowered water-plant.

1		2		3				4
	■		■		■	■	■	
	■	5						
	■		■		■	■	■	
■	6			■	7	8		■
9	■	■	■	10	■		■	11
12							■	
	■	■	■		■		■	
13								

Clues Down

1. The name given to a common butterfly; also, to a common bird.
2. The name of a full-black bird.
3. This common substance dissolves in water.
4. Butterflies help the plant to form this.
8. A rhizome-producing plant.
9. The name of a water-bird with a black head and a curved beak.
10. All snakes are this.
11. A palace of wax.

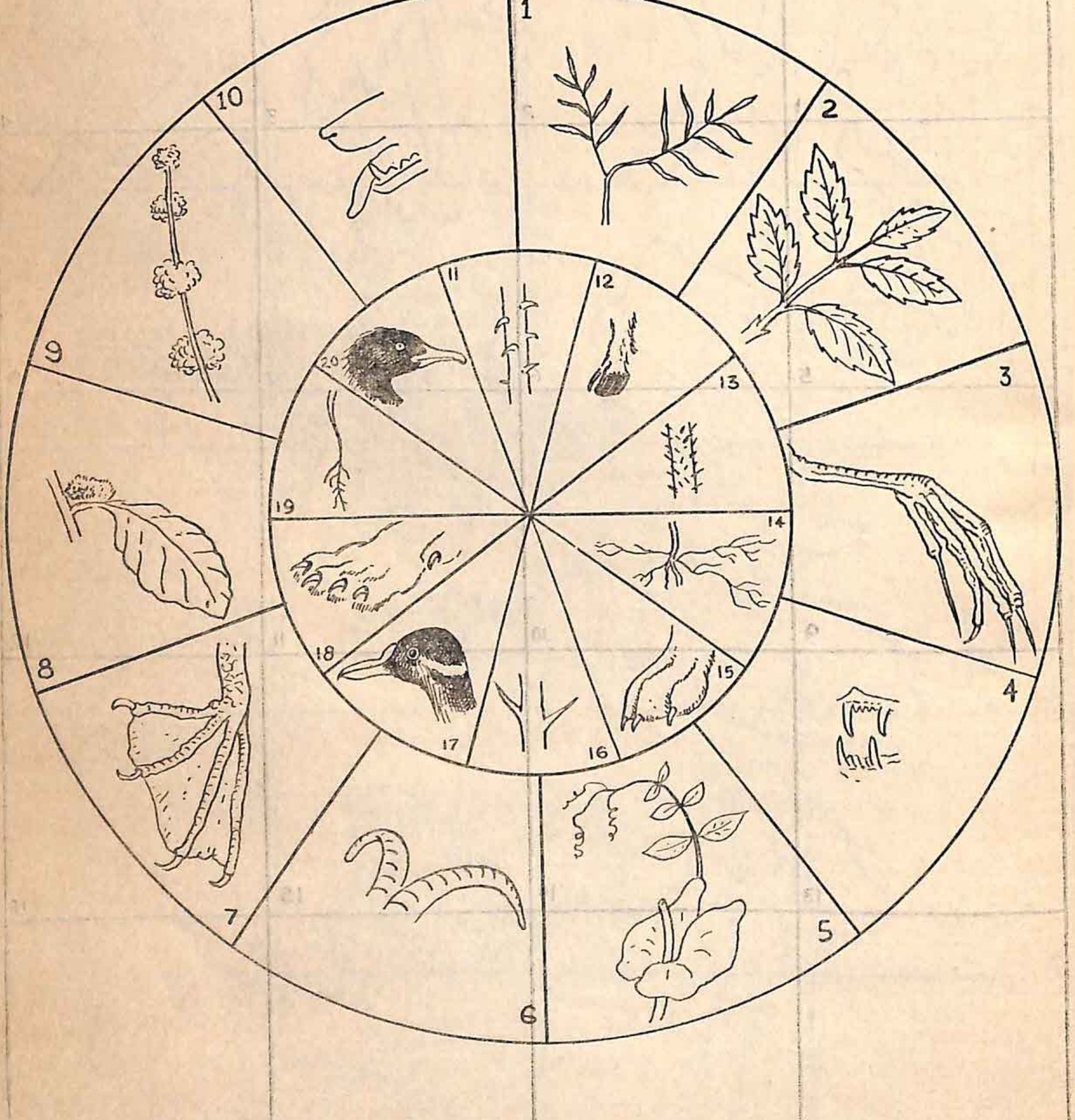
2. Copy the drawing in each numbered square into the corresponding square on the opposite page. You will be surprised at the result. Give your completed drawing a caption.



NAME________________________________CLASS________________DATE________________

1	2	3	4
5	6	7	8
9	10	11	12
13	14	15	16
17	18	19	20

3. Each picture in the inner circle is related to a picture in the outer circle. Pair off the numbers of these pictures on the lines below.



NAME________________________ CLASS______________ DATE______________

4. Complete the names of animals or plants by adding letters to both ends.

TICHO

LIGAT

GAINV

EETRO

ONGOO

CORPI

QUIRR

URMER

IRLIG

NGFIS

5. Do you know why :

a. The level of water in an open vessel becomes lower every day?

____

b. Some taps leak?

____

c. Most caterpillars are green in colour?

____

d. The Egret has long legs?

____

e. Some butterflies fly rapidly, while others fly slowly?

____

6. The following is a list of plants and animals. At the left of each, write **W** if it is found in the water, **L** if it is found on the land or **A** if it is found in the air.

________Amaranth.
________Baronet.
________Eel.
________Fritillary.
________Hornwort.
________Hyacinth.
________Iris.
________Ivy.
________Mackerel.
________Monitor.
________Mormon.
________Plain tiger.
________Seal.
________Snowflake.
________Sorrel.

7. State one difference between each of the following pairs.
   a. Steam and water vapour.
   b. Evaporation and transpiration.
   c. Underground stem and underground root.
   d. Aerial stem and aerial root.
   e. A bug and a beetle.

8. Write the meaning of each of the following words or phrases in your own words.
   a. Saturated solution.
   b. Food chain.
   c. Fang.

9. Make a list of all the things you would need.
   a. To separate salt from sand.
   b. To show that there is food stored in a beetroot.
   c. To catch and study lizards.

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